



UNITED STATES PATENT AND TRADEMARK OFFICE

N✓

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/054,374

01/22/2002

Gerard J. Sullivan

Honeywell No.
A11-26110US

5884

7590

01/07/2005

Dennis C. Bremer
Honeywell International, Inc.
101 Columbia Road
P.O. Box 2245
Morristown, NJ 07962-2245

EXAMINER

ZARNEKE, DAVID A

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,374

Applicant(s)

SULLIVAN ET AL.

Examiner

David A. Zarneke

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-18 and 20-28 is/are pending in the application.
- 4a) Of the above claim(s) 20-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/24/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to amended claims 1-11, 13-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 10, 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Farrand, US Patent 3,614,541.

Regarding claim 2, Farrand teaches the slotted file as having at least three walls.

With respect to claim 4, Farrand teaches the slotted file as having at least 2 side walls and at least 1 back wall.

As to claim 10, Farrand teaches the at least 1 back wall is connected to an end of each of the at least 2 side walls to form a "U" shape.

In re claim 11, Farrand teaches the plurality of grooves on the at least 2 side walls face directly across from each other.

Claims 1, 2, 4, 10, 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wenz, US Patent 3,631,325.

Regarding claim 2, Wenz teaches the slotted file as having at least three walls.

With respect to claim 4, Wenz teaches the slotted file as having at least 2 side walls and at least 1 back wall.

As to claim 10, Wenz teaches the at least 1 back wall is connected to an end of each of the at least 2 side walls to form a "U" shape.

In re claim 11, Wenz teaches the plurality of grooves on the at least 2 side walls face directly across from each other.

Claims 1, 2, 4, 10, 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Johnson, US Patent 4,214,292.

Regarding claim 2, Johnson teaches the slotted file as having at least three walls.

With respect to claim 4, Johnson teaches the slotted file as having at least 2 side walls and at least 1 back wall.

As to claim 10, Johnson teaches the at least 1 back wall is connected to an end of each of the at least 2 side walls to form a "U" shape.

In re claim 11, Johnson teaches the plurality of grooves on the at least 2 side walls face directly across from each other.

Claims 1, 2, 4, 10, 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Budman et al., US Patent 5,276,590.

Regarding claim 2, Budman teaches the slotted file as having at least three walls.

With respect to claim 4, Budman teaches the slotted file as having at least 2 side walls and at least 1 back wall.

As to claim 10, Budman teaches the at least 1 back wall is connected to an end of each of the at least 2 side walls to form a "U" shape.

In re claim 11, Budman teaches the plurality of grooves on the at least 2 side walls face directly across from each other.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Farrand, Wenz, Johnson and Budman, as applied to claim 1 above, and further in view of Vafai, US Patent 6,457,515.

In re claim 3, Farrand, Wenz, Johnson and Budman fail to teach the at least 3 sidewalls as being made of silicon.

Vafai teaches the use of silicon as a heat sink material (2, 51+).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. Ex parte Novak 16 USPQ 2d 2041 (BPAI 1989)*, In re Mostovych 144 USPQ 38 (CCPA 1964), In re Leshin 125 USPQ 416 (CCPA 1960)., Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the Si of Vafai as the heat sink wall material of Johnson because Vafai teaches that Si is a suitable heat sink material.

Regarding claim 5, while Farrand, Wenz, Johnson and Budman all teach the sidewalls (44 & 46) as having a plurality of grooves (40 & 42), they all fail to teach the grooves as being etched.

It would have been obvious to one of ordinary skill in the art at the time of the invention to etch the grooves of Farrand, Wenz, Johnson or Budman because etching is a suitable and commonly used method of forming openings/grooves in materials.

The use of conventional materials or methods to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

With respect to claims 6-9, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the depth and spacing of the grooves to meet standard requirements (MPEP 2144.05(b)).

Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrand, Wenz, Johnson or Budman, as applied to claim 1 above, and further in view of King et al., US Patent 5,140,405.

As to claim 13, Farrand, Wenz, Johnson or Budman fail to teach the chip carrier as having a floor and frame.

King teaches a semiconductor assembly comprising a chip carrier having a floor (40) and a frame (42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the floor and frame chip carrier of King in the invention of Farrand, Wenz, Johnson or Budman because King teaches that a high density modular assembly can be achieved at a low cost (6, 15+).

Regarding claim 14, the use of ceramic as the material of which the floor and frame of a chip carrier are made is conventionally known in the art, barring a showing of unexpected results, the use of conventional materials to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

With respect to claim 15, King teaches a semiconductor assembly comprising a chip carrier having a floor (40) and a frame (42), wherein the floor extends beyond the edges of the frame to form flanges (Figure 6).

Regarding claim 16, King teaches the flanges as fitting into the grooves of a motherboard or other application (1, 31+). While not specifically stating its use in a stacked chip module, one of ordinary skill in the art would know that the "other applications" referred to would include stacked chip modules.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the invention of King in the invention of Farrand, Wenz, Johnson or Budman because the use of ceramic, the forming of flanges and the insertion of the flanges into a slotted file are all an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(d)).

In re claim 17, King teaches the floor has a plurality of electrodes (41).

As to claim 18, King teaches the chips are placed face down on the floor contacting the plurality of electrodes (figure 6).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication from the examiner should be directed to David A. Zarneke at (571)-272-1937. The examiner can normally be reached on M-F 7:30 AM-6 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (571)-272-2034. The fax phone number for the organization where this application is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A. Zarneke
Primary Examiner
December 27, 2004

